

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re Patent Application of:	)	<b>Mail Stop Appeal Brief - Patents</b>
	)	
Alok SHARMA	)	Group Art Unit: 2426
	)	
Application No.: 09/800,397	)	Examiner: J. Zhong
	)	
Filed: March 5, 2001	)	
	)	
For: TRANSCEIVER CHANNEL BANK	)	
WITH REDUCED CONNECTOR	)	
DENSITY	)	

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**REPLY BRIEF UNDER 37 C.F.R. § 41.41**

Sir:

This Reply Brief is submitted in response to the Examiner's Answer, dated December 7, 2010.

I. STATUS OF CLAIMS

Claims 1, 3-10, 12-17, and 22-40 are pending in the present application. Claims 2, 11, and 18-21 were previously canceled without prejudice or disclaimer. Claims 1, 3-10, 12-17, and 22-40 were rejected in the non-final Office Action, dated April 14, 2010, and are the subject of the present appeal. The pending claims were reproduced in the Claim Appendix of the Appeal Brief.

II. GROUND'S OF REJECTION TO BE REVIEWED ON APPEAL

- A. Claims 1, 3, 4, 16, 17, 22-26, and 37-40 stand rejected under 35 U.S.C. § 103(a) as unpatentable over BARHAM et al. (U.S. Patent No. 6,721,371), in view of YASUDA et al. (U.S. Patent No. 6,466,913), and further in view of PROAKIS et al. ("Digital Signal Processing: Principles, Algorithms, and Applications," ISBN 0133737624, 1996).
- B. Claims 8 and 36 stand rejected under 35 U.S.C. § 103(a) as unpatentable over BARHAM et al., in view of YASUDA et al., further in view of PROAKIS et al., and further in view of DUNLOP et al. (U.S. Patent No. 6,721,872).
- C. Claims 5-7, 13, 27-29, and 33 stand rejected under 35 U.S.C. § 103(a) as unpatentable over BARHAM et al., in view of YASUDA et al., further in view of PROAKIS et al., and still further in view of QUIGLEY et al. (U.S. Patent No. 6,650,624).
- D. Claims 14, 15, 34, and 35 stand rejected under 35 U.S.C. § 103(a) as unpatentable over BARHAM et al., in view of YASUDA et al., further in view of PROAKIS et al., further in view of QUIGLEY et al., and still further in view of PEYROVIAN (U.S. Patent No. 5,768,682).
- E. Claims 9, 10, 12, and 30-32 stand rejected under 35 U.S.C. § 103(a) as unpatentable over BARHAM et al., in view of YASUDA et al., further in view of PROAKIS et al., further in view of QUIGLEY et al., and still further in view of Appellant's Fig. 17(A).

III. ARGUMENTS

**A. The rejection of claims 1, 3, 4, 16, 17, 22-26, and 37-40 under 35 U.S.C. § 103(a) as unpatentable over BARHAM et al., in view of YASUDA et al., and further in view of PROAKIS et al. should be reversed.**

1. Claims 1, 3, 4, 16, 17, 22, and 23

In the Appeal Brief, Appellant demonstrated that BARHAM et al., YASUDA et al., and PROAKIS et al. do not disclose or suggest **retrieving filter coefficients associated with a first bandpass bandwidth**, as recited in claim 1 (Appeal Brief, pp. 11-12). In response, the Examiner relies on portions of BARHAM et al. for allegedly disclosing "a reconfigurable FIR filter and memory for storing data," but relies on the same portion of YASUDA et al., relied upon in the non-final Office Action and addressed in the Appeal Brief, for allegedly disclosing "the coefficients are loaded from the coefficient buffer to the corresponded FIR filter" (Examiner's Answer, p. 19). Therefore, for at least the reasons presented in the Appeal Brief, Appellant maintains that BARHAM et al., YASUDA et al., and PROAKIS et al. do not disclose or suggest the above feature of claim 1.

In the Appeal Brief, Appellant also demonstrated that BARHAM et al., YASUDA et al., and PROAKIS et al. do not disclose or suggest **subjecting the retrieved filter coefficients (which are associated with a first bandpass bandwidth) to a bandpass transformation corresponding to a first center frequency**, as also recited in claim 1 (Appeal Brief, p. 12). Without acquiescing that the cited references disclose or suggest a bandpass transformation corresponding to a first center frequency, Appellant maintains that since BARHAM et al., YASUDA et al., and PROAKIS et al. do not disclose or suggest retrieving filter coefficients associated with a first bandpass bandwidth, as discussed above, it logically follows that BARHAM et al., YASUDA et al., and PROAKIS et al. cannot disclose or suggest subjecting the retrieved filter coefficients (which are associated with a first bandpass bandwidth) to a bandpass transformation corresponding to a first center frequency, as

recited in claim 1.

Additionally, in the Appeal Brief, Appellant demonstrated that that **the alleged reasons for combining BARHAM et al., YASUDA et al., and PROAKIS et al. do not satisfy the requirements of 35 U.S.C. § 103** (Appeal Brief, pp. 12-13). Specifically, for example, Appellant demonstrated that the alleged reasons for combining BARHAM et al. and YASUDA et al. do not satisfy the requirements of 35 U.S.C. § 103 (*id.*). The Examiner responds, *inter alia* (Examiner's Answer, p. 21):

In KSR International Co. v. Teleflex Inc., the Court found that if all the claimed elements are known in the prior art then one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yield [sic] predictable results to one of ordinary skill in the art at the time of the invention. In this case, skilled artisans would recognize loading different sets of coefficient to the digital FIR filter which would yield different FIR filters, thus the system as the benefit of filtering [a] variety of frequency ranges by using the same components.

Initially, as discussed above, Appellant submits that not all of the claimed elements are "known in the prior art" (*e.g.*, Appellant demonstrated that the cited references fail to disclose or suggest retrieving filter coefficients associated with a first bandpass bandwidth, and subjecting the retrieved filter coefficients (which are associated with a first bandpass bandwidth) to a bandpass transformation corresponding to a first center frequency, as recited in claim 1). Therefore, even under the Examiner's interpretation of the KSR holding, the Examiner has failed to provide articulated reasoning with regard to combining BARHAM et al. and YASUDA et al.

Furthermore, the Examiner appears to apply an improper standard, by alleging that "*skilled artisans* would recognize. . ." (emphasis added). Appellant submits that 35 U.S.C. § 103(a) states that the standard is whether "the subject matter as a whole would have been obvious at the time the invention was made to *a person having ordinary skill in the art*" (emphasis added). Therefore, the

Examiner's allegation, which relies on an improper standard, is defective, and the Examiner has further failed to establish a *prima facie* case of obviousness with respect to claim 1.

The Examiner provides similar arguments with respect to the alleged reasons for combining PROAKIS et al. with the alleged combination of BARHAM et al. and YASUDA et al. (Examiner's Answer, p. 21). For at least reasons similar to the reasons provided above with respect to combining BARHAM et al. and YASUDA et al., Appellant maintains that the Examiner has failed to provide articulated reasoning with regard to combining BARHAM et al., YASUDA et al., and PROAKIS et al.

For at least the reasons given above, and for at least those reasons presented in the Appeal Brief, Appellant submits that the rejection of claim 1 under 35 U.S.C. § 103(a) based on BARHAM et al., YASUDA et al., and PROAKIS et al. is improper. Accordingly, Appellant requests that the rejection be reversed.

Claims 3, 4, 16, 17, 22, and 23 depend from claim 1. Therefore, Appellant respectfully requests that the rejection of these claims be reversed for at least the reasons given above with respect to claim 1.

## 2. Claims 24-26 and 37-40

In the Appeal Brief, Appellant demonstrated that BARHAM et al., YASUDA et al., and PROAKIS et al. do not disclose or suggest **means for retrieving filter coefficients associated with a first bandpass bandwidth**, as recited in claim 24 (Appeal Brief, pp. 14-15). Appellant also demonstrated that BARHAM et al., YASUDA et al., and PROAKIS et al. do not disclose or suggest **means for subjecting the retrieved filter coefficients (which are associated with a first bandpass bandwidth) to a bandpass transformation corresponding to a first center frequency**, as also recited in claim 24 (Appeal Brief, p. 15). Additionally, Appellant further demonstrated that **the reasons for combining BARHAM et al., YASUDA et al., and PROAKIS et al. do not satisfy**

**the requirements of 35 U.S.C. § 103** (Appeal Brief, pp. 15-16). In response, the Examiner provides similar remarks as provided for claim 1 (Examiner's Answer, pp. 22-24).

For at least reasons similar to the reasons given above with respect to claim 1, and for at least those reasons presented in the Appeal Brief, Appellant submits that the rejection of claim 24 under 35 U.S.C. § 103(a) based on BARHAM et al., YASUDA et al., and PROAKIS et al. is improper. Accordingly, Appellant requests that the rejection be reversed.

Claims 25, 26, and 37-40 depend from claim 24. Therefore, Appellant requests that the rejection of these claims be reversed for at least the reasons given above with respect to claim 24.

**B. The rejection of claims 8 and 36 under 35 U.S.C. § 103(a) as unpatentable over BARHAM et al., in view of YASUDA et al., further in view of PROAKIS et al., and still further in view of DUNLOP et al. should be reversed.**

1. Claim 8

In the Appeal Brief, Appellant demonstrated that BARHAM et al., YASUDA et al., PROAKIS et al., and DUNLOP et al. do not disclose or suggest that **an analog to digital converter, a plurality of digital receivers, and a non-volatile storage are implemented on a single integrated circuit**, as recited in claim 8 (Appeal Brief, pp. 17-18). In response, the Examiner alleges that, "[s]ince all the elements are disclosed by the cited references, it would have been clearly obvious to one of ordinary skill in the art at the time of the invention to combine all the elements as teach [sic] by Barham and Yasuda into one single chip as taught by Dumlop [sic] for compact circuit design" (Examiner's Answer, pp. 24-25).

Without acquiescing that "all the elements are disclosed by the cited references," as alleged by the Examiner, Appellant submits that the Examiner has not advanced any evidence that supports the Examiner's allegation that it would have been well-known to one having ordinary skill in the art at the time of the invention for an analog to digital converter, a plurality of digital receivers, and a

non-volatile storage to be implemented on a single integrated circuit, as recited in claim 8. Instead, the Examiner relies on DUNLOP et al. for merely allegedly disclosing "combining different elements into a single chip." However, the Examiner does not cite any art that discloses or suggests implementing the specific elements recited in claim 8 (*i.e.*, an analog to digital converter, a plurality of digital receivers, and a non-volatile storage) on a single integrated circuit. Therefore, the Examiner has not established a *prima facie* case of obviousness with regard to claim 8.

For at least the reasons given above, and for at least those reasons presented in the Appeal Brief, Appellant submits that the rejection of claim 8 under 35 U.S.C. § 103(a) based on BARHAM et al., YASUDA et al., PROAKIS et al., and DUNLOP et al. is improper. Accordingly, Appellant requests that the rejection be reversed.

## 2. Claim 36

In the Appeal Brief, Appellant demonstrated that BARHAM et al., YASUDA et al., PROAKIS et al., and DUNLOP et al. do not disclose or suggest that **an analog to digital converter, a plurality of digital receivers, and a non-volatile storage are implemented on a single integrated circuit**, as recited in claim 36. In response, the Examiner provides similar remarks as provided for claim 8 (Examiner's Answer, p. 25).

For at least reasons similar to the reasons given above with respect to claim 8, and for at least those reasons presented in the Appeal Brief, Appellant submits that the rejection of claim 36 under 35 U.S.C. § 103(a) based on BARHAM et al., YASUDA et al., PROAKIS et al., and DUNLOP et al. is improper. Accordingly, Appellant requests that the rejection be reversed.

**C. The rejection of claims 5-7, 13, 27-29, and 33 under 35 U.S.C. § 103(a) as unpatentable over BARHAM et al., in view of YASUDA et al., further in view of PROAKIS et al., and still further in view of QUIGLEY et al. should be reversed.**



1. Claims 5, 6 and 13

For at least the reasons presented at p. 20 of the Appeal Brief, Appellant maintains that the rejection of claims 5, 6, and 13 under 35 U.S.C. § 103(a) based on BARHAM et al., YASUDA et al., PROAKIS et al., and QUIGLEY et al. is improper. Accordingly, Appellant requests that the rejection be reversed.

2. Claim 7

In the Appeal Brief, Appellant demonstrated that **the ratio of the number of upstream channels demodulated by a CMTS channel bank to a number of upstream input connectors of the CMTS channel bank is M, where M is 16**. BARHAM et al., YASUDA et al., PROAKIS et al., and QUIGLEY et al., whether taken alone or in any reasonable combination, do not disclose or suggest the above feature of claim 7 (Appeal Brief, pp. 21-22). Specifically, for instance, Appellant demonstrated that the above feature of claim 7 is not merely a design choice, as alleged by the Examiner. In response, the Examiner alleges "the number of channel could reduce based on how fast the system can process the signal (how fast the system can switch between different filters and how fast to perform the filter process etc.)" (Examiner's Answer, p. 27).

Appellant submits that the Examiner has not advanced any evidence that supports the Examiner's allegations. Specifically, for example, BARHAM et al., YASUDA et al., PROAKIS et al., and QUIGLEY et al. do not disclose or suggest that a ratio of the number of upstream channels demodulated by a CMTS channel bank to a number of upstream input connectors of the CMTS channel bank could be 16. As described in Appellant's Specification at, for example, p. 5, lines 21-24 and p. 6, lines 10-11, "[i]n prior art channel bank systems, every upstream channel requires a respective splitter tap, receiver input including a bulkhead-mount connector, and cabling between the splitter tap and the receiver input. . . . What is needed is a receiver channel bank architecture that permits miniaturization of line cards and channel banks by reducing the number of connectors

required." The Examiner has not provided any evidence to the contrary. Therefore, Appellant submits that the Examiner has failed to establish a *prima facie* case of obviousness with respect to claim 7.

Furthermore, for at least the reasons provided at pp. 22-23 of the Appeal Brief, Appellant maintains that that **the reasons for combining BARHAM et al., YASUDA et al., PROAKIS et al., and QUIGLEY et al. do not satisfy the requirements of 35 U.S.C. § 103.**

For at least the reasons given above, and for at least those reasons presented in the Appeal Brief, Appellant submits that the rejection of claim 7 under 35 U.S.C. § 103(a) based on BARHAM et al., YASUDA et al., PROAKIS et al., and QUIGLEY et al. is improper. Accordingly, Appellant requests that the rejection be reversed.

3. Claims 27, 28, and 33

For at least the reasons presented at p. 23 of the Appeal Brief, Appellant maintains that the rejection of claims 27, 28, and 33 under 35 U.S.C. § 103(a) based on BARHAM et al., YASUDA et al., PROAKIS et al., and QUIGLEY et al. is improper. Accordingly, Appellant requests that the rejection be reversed.

4. Claim 29

In the Appeal Brief, Appellant demonstrated that BARHAM et al., YASUDA et al., PROAKIS et al., and QUIGLEY et al. do not disclose or suggest that **the ratio of the number of upstream channels demodulated by a CMTS channel bank to a number of upstream input connectors of the CMTS channel bank is M, where M is 16** (Appeal Brief, pp. 23-24). Additionally, Appellant demonstrated that **the reasons for combining BARHAM et al., YASUDA et al., PROAKIS et al., and QUIGLEY et al. do not satisfy the requirements of 35 U.S.C. § 103** (Appeal Brief, pp. 24-25). In response, the Examiner provides similar remarks as provided for claim 7 (Examiner's Answer, pp. 28-30).

For at least reasons similar to the reasons given above with respect to claim 7, and for at least those reasons presented in the Appeal Brief, Appellant submits that the rejection of claim 36 under 35 U.S.C. § 103(a) based on BARHAM et al., YASUDA et al., PROAKIS et al., and QUIGLEY et al. is improper. Accordingly, Appellant requests that the rejection be reversed.

**D. The rejection of claims 14, 15, 34, and 35 under 35 U.S.C. § 103(a) as unpatentable over BARHAM et al., in view of YASUDA et al., further in view of PROAKIS et al., further in view of QUIGLEY et al., and still further in view of PEYROVIAN should be reversed.**

For at least the reasons presented at pp. 25-27 of the Appeal Brief, Appellant maintains that the rejection of claims 14, 15, 34, and 35 under 35 U.S.C. § 103(a) based on BARHAM et al., YASUDA et al., PROAKIS et al., QUIGLEY et al., and PEYROVIAN is improper. Accordingly, Appellant requests that the rejection be reversed.

**E. The rejection of claims 9, 10, 12, and 30-32 under 35 U.S.C. § 103(a) as unpatentable over BARHAM et al., in view of YASUDA et al., further in view of PROAKIS et al., further in view of QUIGLEY et al., and still further in view of Appellant's Fig. 17(A) should be reversed.**

For at least the reasons presented at pp. 27-28 of the Appeal Brief, Appellant maintains that the rejection of claims 9, 10, 12, and 30-32 under 35 U.S.C. § 103(a) based on BARHAM et al., YASUDA et al., PROAKIS et al., QUIGLEY et al., and Appellant's Fig. 17(A) is improper. Accordingly, Appellant requests that the rejection be reversed.

IV. CONCLUSION

In view of the foregoing arguments and for the reasons presented in the Appeal Brief, Appellant respectfully solicits the Honorable Board to reverse the Examiner's rejection of claims 1, 3-10, 12-17, and 22-40.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 50-1070 and please credit any excess fees to such deposit account.

Respectfully submitted,

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